Introduction

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Risk management

Risk management is focused on anticipating what might not go to plan and putting in place actions to reduce uncertainty to a tolerable level.
Risk can be perceived either positively (upside opportunities) or negatively (downside threats). A risk is the potential of a situation or event to impact on the achievement of specific objectives
Working with the risk owner, the project professional ensures that risks are clearly identified before moving on to the risk analysis step of the risk management process.
The project risk management process reflects the dynamic nature of project work, capturing and managing emerging risks and reflecting new knowledge in existing risk analyses.

A risk register is used to document risks, analysis and responses, and to assign clear ownership of actions.

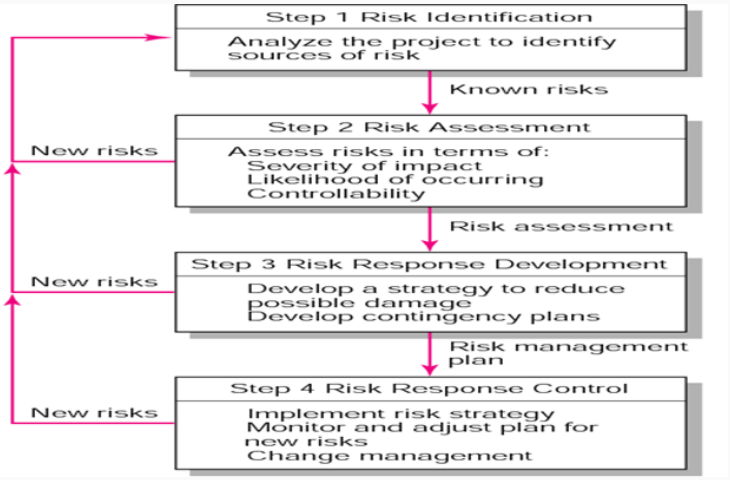
What is risk analysis?

Risk analysis provides guidance on where the greatest vulnerabilities lie. Because risk analysis is fundamentally perception based, it is important for the project professional to engage stakeholders early to identify risks.

To make sense of differing perceptions, it is important to describe risk events clearly, separating causes (facts now), from risk events (situations that may occur), from effects (that have an impact on one or more of the project measures). This enables subsequent analysis and management of risks.

Lecture

Risk Management Process



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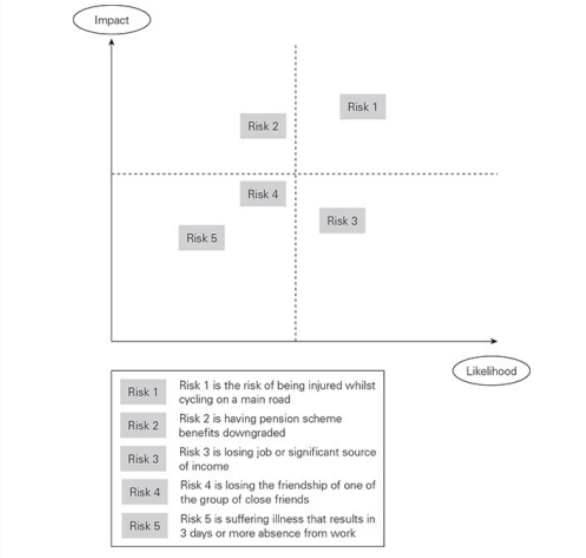
Risk identification is the process of determining risks that could potentially prevent the program, enterprise, or investment from achieving its objectives. It includes documenting and communicating the concern. Keywords: risk, risk identification, risk management

PESTLE is an acronym that stands for political, economic, sociological, technological, legal and ethical risks. In some versions of the approach, the final E is used to indicate narrower environmental considerations.

Risk Assessment is assessing a risk based on its likelihood of occurring and severity of impact. This can be translated in a Risk Matrix as shown in the figure below


Impact
Risk 1
Risk 2
Risk 4
Risk 3
Risk 5
Likelihood
Risk 1
Risk 1 is the risk of being injured whilst cycling on a main road
Risk 2
Risk 2 is having pension scheme benefits downgraded
Risk 3
Risk 3 is losing job or significant source of income
Risk 4
Risk 4 is losing the friendship of one of the group of close friends
Risk 5
Risk 5 is suffering illness that results in 3 days or more absence from work

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Or

			Impact			
			0 Acceptable	1 Tolerable	2 Unacceptable	3 Intolerable
			Little or No Effect	Effects are Felt but Not Critical	Serious Impact to Course of Action and Outcome	Could Result in Disasters
Likelihood	Improbable	Risk Unlikely to Occur				
	Possible	Risk Will Likely Occur				
	Probable	Risk Will Occur				

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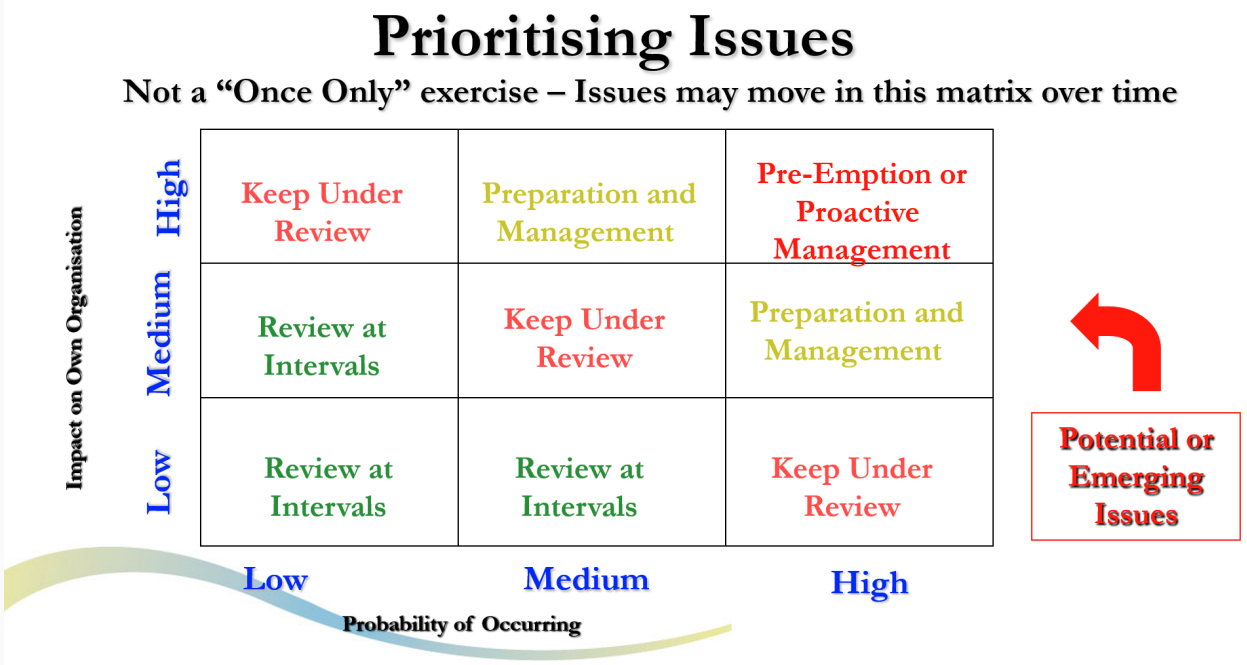

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A Probability-Impact Matrix is a method that helps to identify which risks need your attention most. The combined probability and impact scores of individual risks are simply plotted into the two dimensional matrix. Thresholds for low, moderate or high risks can be shown on the matrix which help in rating the risks. Risks can be moved around the matrix as a result of implementing the risk response plans.

Example:

The following risk register and P-I matrix are part of the results of a risk analysis study that has been performed by an external consultant to facilitate a change initiative within an organization.

Risk	Impact	Controls	RPN (P*I)
R.1 Disruption of operations in the absence of key managers	Ineffective managerial decision making and failure to meet goals	No controls	2*10 = 20
R.8 Failure to achieve targeted performance goals	Non attainment of goals and loss of profitability and market share	KPI's in place covering all business functions	3*5 = 15
R.15 Inadequate staff development programs	Entitlement of excessive operating costs and dissatisfied employees	Budget, policies covering staff development	5*2 = 10
R.21 Staff attendance data is not properly used	Entitlement of extra leave and excessive payroll costs	Attendance is captured & reviewed by business units	3*1 = 3
R.26 Inaccurate calculation of payroll	Incorrect processing of salary payments	Payroll system & manual intervention is very limited	3*2 = 6
R.28 Employee performance is not reviewed regularly	Unjustified evaluation and dissatisfied employees	No controls	2*2 = 4

P / I	Insignificant (1)	Minor (2)	Moderate (3)	Major (5)	Severe (10)
Certain (10)	10 Medium	20 High	30 Critical	50 Critical	100 Critical
Likely (5)	5 Medium	R.15 Inadequate staff development programs	15 High	25 Critical	50 Critical
Possible (3)	R.21 Staff attendance data is not properly used	R.26 Inaccurate calculation of payroll	9 Medium	R.8 Failure to achieve targeted performance goals	30 Critical
Unlikely (2)	2 Low	R.28 Employee performance is not reviewed regularly	6 Medium	10 Medium	R.1 Disruption of operations in the absence of key managers
Rare (1)	1 Low	2 Low	3 Low	5 Medium	10 Medium

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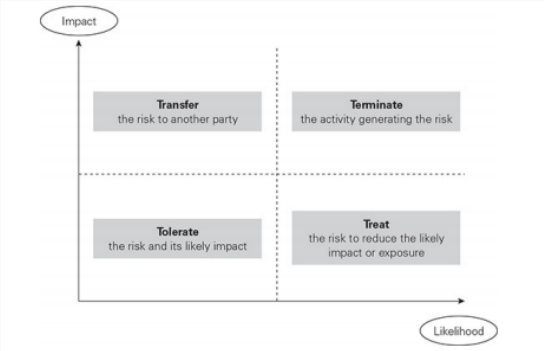
Risk response: The 4Ts of hazard risk management can be summarized as: tolerate, treat, transfer and terminate.



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Risk Register- is a document that contains the information about identified risks, results of Risk Analysis (impact, probability, effects), as well as Risk Response Plans. You also use the Risk Register to monitor and control risks during the whole project life cycle.

Risk Register examples:

No	HAZARD/RISK	CAUSE	BEFORE CONTROLS			CONSEQUENCE	RESPONSE (avoid, transfer, mitigate, accept & manage)	AFTER CONTROLS		
			P	I	R=PxI			P	I	R=PxI
1	Unexpected ground conditions	Ground conditions encountered on site differ from those indicated in the project ground investigation.	3	3	9	Construction delayed. Design review required with possible changes in design. Project cost and timescale increased	Monitor works in progress. Use experienced staff on site. Ensure that site staff are aware of the results of the ground investigation and the basis of the design of the permanent Works	3	1	3
2	Flooding	Prolonged rain, Rise in groundwater levels within bog. Local watercourses break banks.	3	4	12	Permanent works damaged. Work stops. Increased costs for repair of the Works. Project delayed	Ensure that cut off drains are installed and serviceable. Monitor weather forecasts and take action in light of forecasted poor weather	2	2	4
3	Site clearance	Clearance of vegetation from within the site limits ahead of the permanent Works	4	3	12	Damage to fibrous surface of peatbog. Removal of surface rootmat. Design of Works affected	Use low ground pressure construction plant. Ensure that site staff are aware that existing root mat has to be retained as reinforcement	2	1	2
4	Placing of fill on geotextile	Rupture, puncture or tearing of the permanent geotextile	4	4	16	Damage to permanent Works. Fill material laid directly on to bog surface. Failure of subgrade	Protect geotextile with layer of fine material. Ensure that site staff are aware of need to protect geotextile during installation	2	1	2

Index	WBS Element	Category	Description	Effects	Expected Effect Date	Probability	Impact	Risk Rank	Owner	Response Plan
0001	1.1.3	Vendors	Web component of the application depends on the design created by the external design team.	Delays in the design delivery will directly impact the project schedule	02.01.2021	6	10	60	D. Nizhebetski	"Procurement manager should include the following terms in the contract: - Weekly Reports. - Weekly on-site meetings. - Delivery via collaboration system (e.g. Invision)"
0002	1.6.5	HR	Resources for mobile development are limited and on high demand.	- Unavailability of developers may cause delays. - Quality may suffer due to multitasking.	10.02.2021	8	8	64	D. Nizhebetski	- Develop cross-project HR plan together with Ann Smith and Ron Nagle - Secure required resources.
0003	1.2.3.6	Quality	New functionality may require changes to the infrastructure.	- Poor performance. - Delivery will not be accepted.	01.03.2021	3	10	30	R. Anderson	- Reserve 2 days of work in the beginning of January for Infrastructure Team. - Perform regular performance testing. - Reserve time for performance optimisation (about 2 weeks).
0004	1,3	Scope	Implementation depends on Deliverable 1.1.3.	- More efforts will be required to implement the UI.	12.03.2021	3	7	21	J. Robertson	- Task PT-332 was create to encorporate Risk Reserves - BSA should control the vendor on regular basis - Final designs should not require any unsupported technologies.
0005	1.3.2.1	HR	Only one engineer in the company has required skills to deliver the work package. He is currently in conflict with the functional manager. There is a good chance that he will leave the company.	- Delivery will be fully blocked.	01.02.2021	6	10	60	A. Lee E. Remington	- Request HR department to open new vacancy. - Request HR to find an outsourcing/freelancing options. - Start knowledge transfer asap.

LIVE SESSION

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Live session Slides:
To-Do This Week:
✔️ Chech the Introduction and Theory section on an Introduction to Risk and Emergency Management
✔️ Check your understanding through elaborative questioning on the principals and fundamentals of Risk and Emergency Management
✔️ Apply and embed your learning by investigating a case study, sharing what you produce with others and learning from your classmates
✔️ Present, explore and extend your learning at our weekly live class
✔️ Watch a recorded office hour, during which I'll fill any gaps in understanding & respond to your questions (tagged Q&A on the feed)

❓ Need Help?
💻 You can access platform help at any time by clicking on the question mark at the bottom left of this or any page.
🎓 If you have questions about the module content, you can post a question on the feed with the tag Q&A or send me a Direct Message using direct messaging on the right-hand side of the page.
Live session Recording:

Activities

Welcome to week 2! This week we will be exploring the topic of Risk Management and Problem Solving. Please complete the following activity.

First, watch this short video - Overview of risk management

Task 1

Individually research the “Ishikawa Diagram”. Then along with an example of this diagram, write an explanation how this can be useful within the application of risk management. Provide a simple scenario to help with your explanation.

Then share your diagram, explanation and scenario on the feed under the tag “Ishikawa”. Compare your output with other students and comment on other students' examples. Consider if the examples would be applicable to all situations or countries or if the example may be specific to a particular situation, culture or country.

Educator feedback will be provided on the feed for each of these tasks either on the group outputs or as a generalised feedback to the class.

💡 Tip: If you wish, you can review these additional resources to help you to complete the activity
• Video on - COSO ERM Integrated Framework
• Video on - ASTRA
• Coppola D.P (2015) Introduction to International Disaster Management. Elsevier: Oxford
• Hopkin P. (2010) Fundamentals of Risk Management. Kogan page Limited: London
• Hester R.E and Harrison R. M. (2007) Chemicals in Environment – Assessing and Managing Risks. RSC Publishing: Cambridge

FEEDBACK

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To Do: In advance of the session, you need to:

📝 1. Refresh your knowledge of the key concepts covered and prepare to be quizzed!
📝 2. Be ready to discuss and critically analyse the work you have completed
📝 3. Catch up on the feed, ready for more group challenges!
📝 4. Think of a question you still have and add it to the feed using the tag Q&A

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This Week's Mastery Activity:

Teams conduct research on Construction Projects and answer the following questions:

1. What type of risks you may encounter during a construction project?
2. Assess the identified risks using a Risk Matrix and categorize them based on their impact and likelihood?

Prepare a 5-minute Presentation on your findings.